revascularization (TVR/TLR) (1.8% vs. 0.6%, p=0.3584) and cardiac death (0% vs. 0.7%, p=0.9976).
**Conclusion:** This sub-analysis of the ORBIT II study demonstrates that males and females treated with orbital atherectomy for severely calcified coronary arteries (generally regarded as high-risk revascularization) demonstrate similar 30-day outcomes. In the context of the larger study, one can presume that the novel coronary Orbital Atherectomy System is a safe and effective adjunctive therapy for severely calcified coronary lesions in both men and women.

## Bifurcation

## CRT-131

### Feasibility of the Use of the Tryton™ Dedicated Bifurcation Stent via the Transradial Route - A Single Centre Experience

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**Background:** The use of the Transradial access (TR) for the treatment of Coronary Bifurcation Lesions (CBL) with Percutaneous Coronary Intervention (PCI) can be limited where a two stent strategy is required as larger sheath and guide catheters are required to facilitate stent delivery. With the development of newer dedicated bifurcation stents, there is an increasing trend of these stents to be adopted in PCI centres to treat CBL's. We report our experience of the use of the Tryton™ dedicated side branch bifurcation stent at our default TR centre where 90% of all PCI are carried out via the TR.
**Methods:** This was a prospective study of all patients who were found suitable to undergo PCI to CBL's using the Tryton stent between September 2009 and June 2013. Data on patient demographics and procedure characteristics was collected from the local hospital database.
**Results:** 36 patients (Male 69.4%, age 68.1 years) underwent PCI using the 19mm long Tryton™ bifurcation stent. Most of the CBL's treated were located in the LAD/Branch (52.8%), followed by the Circumflex/Branch (27.8%), Left main stem/Branch (13.9%), RCA/Branch (2.7%) and LIMA graft (2.7%). Tryton™ stents dimensions (Side branch/Main branch diameters) deployed were (2.5/2.5mm - 11.1%; 2.5/3.0mm - 25%; 2.5/3.5mm - 47.2%; 3.0/3.5mm - 8.3% and 3.5/4.0mm - 8.3%). 91.6% of cases were carried out via 6F guide catheters with the remaining cases carried out via the 7F. Mean contrast volume, radiation dose and fluoroscopy times were 306 mls, 98.8 Gy/cm2 and 28.2 minutes respectively. 94.4% of all cases were successfully carried out via the TR route with remaining cases switching to the transfemoral route to successfully complete the procedure.
**Conclusions:** When treating CBL's, a wide range of Tryton™ dedicated side branch stents can be safely and effectively deployed via the TR route using 6F/7F Guide catheter systems. This can avoid the use of the transfemoral route and its associated potential vascular complications.

## CABG

## CRT-132

### Under-Utilization of Statins and Aspirin Following Coronary Artery Bypass Graft Surgery

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**Background:** Coronary artery bypass graft (CABG) surgery is commonly performed to treat ischemic heart disease, but long term benefits are limited by patency of saphenous vein grafts. Both statin medications and aspirin hold class I indications for all post-CABG patients and should be continued indefinitely unless contraindication exists. Unfortunately, there is limited data regarding long-term usage of these medications. We assessed utilization rates among post-CABG patients without documented contraindication.
**Methods:** A retrospective analysis of post-CABG patients presenting to the Thomas Jefferson University cardiac catheterization laboratory for a catheterization procedure at least 3 years after surgery was performed. Inpatient and outpatient records were reviewed to assess prescribing patterns of these medications, as well as other pertinent clinical and laboratory data.
**Results:** The study population consisted of 381 consecutive patients who presented on average 11 $\pm$ 6 years from the time of CABG. Mean age of our study population was 69 $\pm$ 11 years with 78% male. The most common indications for catheterization were unstable angina (36%), non-STEMI (22%), and an abnormal stress test (15%). Only 67% of patients were being prescribed a statin, while 75% were prescribed aspirin. Only 52% were prescribed both at the time of catheterization. Three percent had a documented intolerance to statin therapy. Patients prescribed a statin had a significantly lower mean LDL (87 vs. 106 [$p<0.01$]) and total cholesterol values (151 vs. 162 [$p<0.01$]). Thirty five percent of patients had LDL $\geq$ 100. Only 43% of saphenous vein grafts among the patients not on statin medications remained patent an average of 11 years post-CABG surgery.
**Conclusions:** Long-term statin and aspirin use following CABG surgery remains suboptimal despite clear guideline recommendations and clinical trial evidence of their effectiveness. Coordinated efforts are needed to improve long-term medication usage in this subset of high risk patients.

## Cardiovascular Pharmacology

## CRT-133

### Omeprazole Use is Associated with Increased Cardiovascular Complications in Asian Patients on Aspirin and Clopidogrel After Percutaneous Coronary Intervention

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**Background:** Dual anti-platelet therapy (DAPT) with Aspirin and a Thienopyridine-derivative P2Y12 Inhibitor (commonly Clopidogrel) is mandatory after Percutaneous Coronary Intervention (PCI). H2 receptor antagonists (H2RA) or Proton Pump Inhibitors (PPI) are prescribed to reduce gastrointestinal bleeding risk.

Clopidogrel is a prodrug that requires activation by CYP2C19 and other isoenzymes of the cytochrome P450 system. Carriers of a loss-of-function CYP2C19 allele have lower levels of the active metabolite, resulting in reduced platelet inhibition and a potentially higher rate of adverse cardiovascular events. As PPI are competitive inhibitors of CYP2C19, coadministration with Clopidogrel can further reduce the latter's antiplatelet activity.

The COGENT randomised trial which enrolled predominantly white Caucasian males did not demonstrate any adverse interaction between Clopidogrel and Omeprazole use. However, this interaction may be significant in Asian patients as up to 55% of Asians carry a loss-of-function CYP2C19 allele as compared to 30% of Caucasians. We hypothesize that Asian patients taking both Clopidogrel and the PPI Omeprazole are at higher risk of adverse cardiovascular events post-PCI.

**Methods:** This retrospective cohort study in a 1300-bed tertiary hospital in Singapore included all patients from 1st January to 31st December 2011 who had PCI and received either Omeprazole or a H2RA, together with 12 months of Aspirin and Clopidogrel. Prescription and outcome data were retrieved from electronic medical records. The primary outcome was the incidence of cardiovascular complications within 12 months of the initial PCI. Cardiovascular complication is defined as cardiovascular death, non-fatal myocardial infarction, need for urgent target vessel revascularisation and ischemic stroke.

**Results:** We identified 933 patients, of which 614 patients met the criteria for inclusion. The primary outcome occurred in 27 of 296 patients (9.1%) from the Omeprazole group and 13 of 318 patients (4.1%) from the H2RA group ($p = 0.014$). The difference remained statistically significant after adjustment for baseline differences in cardiovascular risk factors in both groups ($p = 0.042$).

**Conclusions:** Using Omeprazole rather than a H2RA was associated with a significantly greater incidence of cardiovascular complications in Asian patients on Clopidogrel after PCI. Larger studies are required to further evaluate this observation.

## CRT-134

### Metformin Does Not Adversely Impact Outcome Following Percutaneous Coronary Intervention in Patients with Diabetes Mellitus

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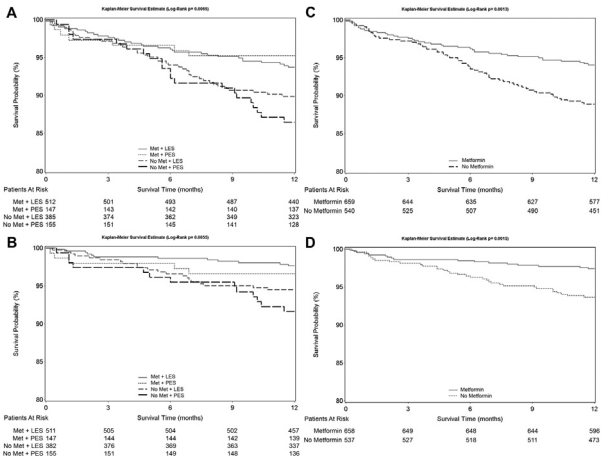
**Background:** The use of metformin in patients with non-insulin-dependent diabetes mellitus (NIDDM) has been associated with improved cardiovascular outcomes. However, recent studies raise concern that use of metformin may inhibit endothelialization following limus-eluting stent (LES) placement and increase the risk of stent thrombosis. Therefore, we set out to study the impact of metformin on stent thrombosis and major adverse cardiovascular events in patients that received drug-eluting stents (DES).

**Methods:** We evaluated consecutive patient with NIDDM discharged on oral anti-hyperglycemic agents that underwent DES placement at our institution from 2003 through 2012. We assessed stent thrombosis, major adverse cardiovascular events (MACE), target lesion revascularization, myocardial infarction, and all-cause mortality at one year and analyzed the impact of metformin use and stent type on these outcomes.

**Results:** We included 1,201 patients with a mean age of 66 ± 10 years, 64.1% were male, 63.5% had ACS, 74.8% received LES, 25.2% received paclitaxel-eluting stents (PES), and 55% were taking Metformin. There was no difference in stent thrombosis, regardless of stent type or metformin use. Whether or not patients received LES or PES did not significantly impact MACE (Figure 1A) or all-cause mortality (Figure 1B). Patients taking metformin had a significant reduction in MACE (p=0.002) and all-cause mortality (p=0.002) compared with patients not taking metformin (Figure 1C and Figure 1D, respectively). However, multivariate analysis demonstrated that stent type and metformin use were not significantly associated with MACE or all-cause mortality.

**Conclusion:** In patients with NIDDM, the use of metformin following placement of DES did not increase the risk of stent thrombosis and MACE, regardless of the type of stent placed.




## Chronic Total Occlusion

## CRT-135

### Rationale of the Decision-Making of Treatment in Chronic Total Occlusion Lesions in a University Hospital

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**Background:** The presence of a chronic total occlusion (CTO) in up to 30% of routine angiograms emphasizes the importance to select an optimal treatment strategy effectiveness of its treatment and its implication in future clinical events.

**Objective:** We assessed the rationale for decision-making in treatment of CTO at our institution.

**Methods:** From June 2010 to December 2012 we evaluated all consecutive patients in our catheterization laboratory in which at least one CTO was diagnosed. Data were prospectively collected on treatment decisions (medical vs. surgery vs. percutaneous coronary intervention <PCI>), PCI indications and subsequent cardiac events through time.

**Results:** 711 patients with at least one CTO in the basal coronary angiogram were included. Two groups were made according to programmed to PCI (PPCI)=189 patients and non-programed to PCI (NPPCI)=522 patients. There was a statistical difference among basal characteristics in patients PPCI vs. NPPCI with less acute myocardial infarction (AMI) 16(13,6%) vs. 81(15,5%) p=0.016; less involvement of 3-vessel disease 56(29,6%) vs. 224 (42,9%) p=0.002; and less presence of coronary left-main disease 12 (6,4%) vs. 72 (13,8%) p=0.007. There was also a difference between age (62,6±10.4 years vs. 68,3±10.7 years; p=<0.0001); ejection fraction (EF) (47,1±13,8% vs. 44,9±13,9;p=0.017%) and creatinine clearance (70,8 ±28,6 ml/min vs. 62 ±23,1, ml/min; p=<0.001). The multivariate analysis demonstrated that the following variables in predicting no PCI as first step approach in CTO lesions: AMI, number of diseased vessels, left main lesion and age. There was a trend to be treated by PCI as first step approach in patients with positive ischemia by a stress test.

**Conclusion:** In a large all comer CTO lesion population, in a University hospital; the first step approach of revascularization is dictated by clinical factors as age, comorbidity (EF and creatinine clearance), AMI; anatomical factors such as left-main disease and 3-vessel disease. On the other hand, at our institution the choice of PCI as first step